

## Transparencies

5. Verisimilitude
- 1a. Atomic Structure
2. Probability Distribution of the Electron in a Hydrogen Atom
3. Notion from A to B.  
Particle Description  
Field Description
4. Annihilation, Creation and the Vacuum.

1. UCL study of physics - penultimate piece,  
 QT & Relativity disappointed - Black box approach  
 to QM - fastening physics & people in a  
 hurry / physics for pedestrians
2. Inclusion among philosophers, start again from  
 scratch, learn language of philosophy + my  
 physics
3. Phil. of physics recognized discipline  
 second-order activity reflecting on nature of  
 physics - ex. neurologist  
 concerned with underlying principles, concepts  
 and ultimate presuppositions of ~~the~~ physics
4. Modern physics raises several phil. problems
  - (1) appearance of theory - Ad hoc etc
  - (2) heuristics, metacriteria of quality  
 models, theories etc
  - (3) ethical & aesthetic questions
  - (4) Social organization
  - (5) Metaphysical questions - ultimate nature of reality
5. General phil. of science  
 Science concerned with the nature of the external world  
 not inner world of thoughts, dreams, hopes  
 - objective reality v. subjective experience of  
 reality
6. presuppositions - (1) physical entities  
 (2) know through sense experience  
 (3) exist independently of perception  
 (4) Cause these impressions



fact, Ross's defense

In fact (1) rationalism  
(2) empiricism.

8. But empiricism  $\rightarrow$  scepticism

$\rightarrow$  pull in direction of <sup>idealism</sup> positivism, phenomenism, sensualism

9. ~~Cogitavit~~ rationalism - is it credible?

10. Cogitavit rationalism

11. Science does not give us certain  
conjectures controlled by experiment.

12. This is mess of Potter

13. demarcation criterion

14. Edder anecdote

15. empirical basis - methodological decisions

16. Bucket v. searchlight - stories lead to problems  
 $\rightarrow$  new theories

17. Verisimilitude

18. Miller example  $P \supset D$   $\rightarrow P \wedge D$

19. Popper letter in fine source that if applied science  
this theory will run from bottom to Cambridge towards  
broad horizons

2. <sup>relativity of simultaneity</sup>  
quest for the truth

21. Nature of reality, defn of metaphysics
22. QM example
23. New sense of interpolation
24. ex Existence of tables
- 25.1 ex Atomism  
History
26. Kinetic theory — pragmatic atomism  
→ metaphysical atomism
27. Atomic structure
28. heuristic guide of metaphysical atomism
29. Nature of electron
30. q.m. — wave-particle duality
31. electron spread as a wave
32. nonlocality of an electron as a particle
33. creation / annihilation  $\rightarrow \alpha \beta^\dagger$
34. Motion from A-B — particle direction



36. creation } correlation  
— Tetrahedron

37. Under determination  
but evaluation in form of quantities

38. Puzzle about DM  
To be spread self-fulfilling  
Sethi's argument, but  
realist interpretation, must-independent  
reality, but relative involvement of  
components' parts of a composite system

39. Interaction of Physics & Philosophy.

Revolutions: Metaphysics drives Physics  
Normal science: Physics justifies Metaphysics  
— Experimental metaphysics

40. Aspect experiment  
— new immediate sense of experimental  
metaphysics

41. Parametric interaction  
Q.T. will be found different

42. Concluding remarks, Bell example